SEARCH

```
=> d his l82

     (FILE 'HCAPLUS' ENTERED AT 16:16:27 ON 11 JAN 2010)
L82            6 S L77 AND L81
                 SAV TEMP L82 WEI249HCP/A

=> d que l82
L2            13 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  (105-58-8/BI
                 OR 1717-82-4/BI OR 1717-83-5/BI OR 1717-84-6/BI OR
                 2049-95-8/BI OR 21324-40-3/BI OR 616-38-6/BI OR
                 623-53-0/BI OR 827-52-1/BI OR 852333-52-9/BI OR
                 872-36-6/BI OR 96-49-1/BI OR 98-06-6/BI)
L3          1155 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  46.150.1/RID
                 AND 46.150.18/RID AND X/ELS AND 3/ELC.SUB AND 2/NRS
L4         12078 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  46.150.18/RID
                  AND 1/NRS AND ((C(L)H)/ELS(L)2/ELC.SUB)
L5  (      12078)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  46.150.18/RID
                  AND 1/NRS AND ((C(L)H)/ELS(L)2/ELC.SUB)
L6  (        271)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L5 AND
                 ?TERT?/CNS
L7  (        117)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L5 AND
                 SEC?/CNS
L8           384 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L6 OR L7
L9  (      41379)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/C
                 NS
L10 (      13115)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L9 AND NO
                 RSD/FA
L11         6035 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L10 NOT
                 M/ELS
L12            3 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L2 AND L11
L13 (      41379)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/C
                 NS
L14        28262 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L13 AND
                 RSD/FA
L15            2 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L2 AND L14
L19          146 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  (DIMETHYLVINY
                 LENE OR VINYLETHYLENE OR PROPYLENE OR BUTYLENE)(A)CARBO
                 NATE
L20          142 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L19 AND L14
L21          144 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L20 OR L15
L22          326 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L3 AND 1-2/F

L23            4 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L2 AND L22
L24            2 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L4 AND L2
L27          415 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L4 AND
                 ISO?/CNS
L29          785 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L8 OR L27
L30            2 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L2 AND L29
L33            1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  "BENZENE,
                 1,3-BIS(1,1-DIMETHYLETHYL)-"/CN
L34            1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L29 AND L33
L37            1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  "4-TERT-BUTYL
                 BIPHENYL"/CN
L42            1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  "4,4'-DI-TERT
                 -BUTYLDIPHENYL ETHER"/CN
L43            1 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  "ETHER,
                 BIS(P-TERT-PENTYLPHENYL)"/CN
L44            4 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  (L33 OR L34)
                 OR L37 OR L42 OR L43
L45 (       1155)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  46.150.1/RID
                 AND 46.150.18/RID AND X/ELS AND 3/ELC.SUB AND 2/NRS
L46 (      12078)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  46.150.18/RID
                  AND 1/NRS AND ((C(L)H)/ELS(L)2/ELC.SUB)
L47 (        271)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L46 AND
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                ?TERT?/CNS
L48 (       117)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L46 AND
                SEC?/CNS
L49 (       384)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L47 OR L48
L50 (     41379)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/C
                NS
L51 (     13115)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L50 AND NO
                RSD/FA
L52 (      6035)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L51 NOT
                M/ELS
L53 (     28262)SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L50 AND
                RSD/FA
L54 (    111748)SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L52
L55 (    190374)SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L53
L56 (      1439)SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L45
L57 (      8410)SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L49
L58           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L54 AND L55
                AND L56 AND L57
L60        8410 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L8
L61           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 AND L60
L62        1439 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L3
L63           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 AND L62
L64       26442 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L21
L65           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L63 AND L64
L67         628 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L22
L68           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 AND L67
L69          20 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L23
L70           5 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L69 AND L68
L71         294 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L44
L72           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L58 OR L61 OR
                L63 OR L65 OR L68 OR L70
L73           0 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 AND L71
L74           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L72 OR L73
L75             QUE  SPE=ON  ABB=ON  PLU=ON  VOLT? OR TERMINAT?(2A)(VOL
                T? OR V)
L76             QUE  SPE=ON  ABB=ON  PLU=ON  CHARG? OR DISCHARG? OR BAT
                TER?(2A)(LITHIUM? OR LI OR SECONDAR?) OR ELECTROLYT? OR
                 NONAQUEOUS? OR NON(W)AQUEOUS? OR ANODE OR CATHODE OR E
                LECTRODE(2A)(POSITIVE OR NEGATIVE)
L77           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L74 AND (L75
                OR L76)
L78          15 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L12 OR L15
                OR L23 OR L24 OR L30 OR L44
L79          17 SEA FILE=REGISTRY SPE=ON  ABB=ON  PLU=ON  L2 OR L78
L80             SEL  PLU=ON  L79 1- NAME :      70 TERMS
L81       64238 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L80
L82           6 SEA FILE=HCAPLUS SPE=ON  ABB=ON  PLU=ON  L77 AND L81
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SEARCH RESULTS

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=> d l82 1-6 ibib ed abs hitstr hitind

L82  ANSWER 1 OF 6  HCAPLUS  COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER:          2007:1277956  HCAPLUS  Full-text
DOCUMENT NUMBER:           147:525343
TITLE:                     Nonaqueous electrolyte
                           solution and secondary
                           nonaqueous electrolyte
                           battery
INVENTOR(S):               Fujii, Takashi; Shima, Noriko; Ohashi,
                           Youichi; Kinoshita, Shinichi
PATENT ASSIGNEE(S):        Mitsubishi Chemical Corporation, Japan
SOURCE:                    PCT Int. Appl., 241 pp.
                           CODEN: PIXXD2
DOCUMENT TYPE:             Patent
LANGUAGE:                  Japanese
FAMILY ACC. NUM. COUNT:    1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
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     WO 2007126068       A1     20071108    WO 2007-JP59207
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         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY,
             BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,
             EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL,
             IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,
             LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
             NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE,
             SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
             US, UZ, VC, VN, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
             HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE,
             SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GH, GQ, GW, ML,
             MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD,
             SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
     JP 2007299541       A      20071115    JP 2006-124042
                                                                   2006
                                                                   0427
     JP 2007299542       A      20071115    JP 2006-124044
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     JP 2007299543       A      20071115    JP 2006-124045
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                                                                   0427
     JP 2007317654       A      20071206    JP 2007-118487
                                                                   2007
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     JP 2007317655       A      20071206    JP 2007-118488
                                                                   2007
                                                                   0427
     EP 2012386          A1     20090107    EP 2007-742642
                                                                   2007
                                                                   0427
         R:  AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
             HU, IE, IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO,
             SE, SI, SK, TR, AL, BA, HR, MK, RS
     CN 101432923        A      20090513    CN 2007-80015008
                                                                   2008
                                                                   1027
     KR 2008111139       A      20081222    KR 2008-728011
                                                                   2008
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					1117
US 20090325065	A1	20091231	US 2009-298440		
					2009
					0211
PRIORITY APPLN. INFO.:			JP 2006-124041	A	
					2006
					0427
			JP 2006-124042	A	
					2006
					0427
			JP 2006-124043	A	
					2006
					0427
			JP 2006-124044	A	
					2006
					0427
			JP 2006-124045	A	
					2006
					0427
			WO 2007-JP59207	W	
					2007
					0427

ED Entered STN: 09 Nov 2007

AB The battery has a Li-intercalating anode containing an anode active mass which comprises ≥1 atom selected from Si, Sn and Pb, and an electrolyte solution; where the electrolyte solution contains a carbonate containing an unsatd. bond and/or a halogen atom, and at least one compound selected from compds. (A), (B), (C), (D) and (E) specified in the description.

IT 98-06-6, (1,1-Dimethyl ethyl) benzene
1717-82-4, 1-Cyclohexyl 2-fluorobenzene 1717-84-6, 1-Cyclohexyl 4-fluorobenzene
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing carbonates and additives for secondary lithium batteries)

RN 98-06-6 HCAPLUS

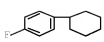
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)

RN 1717-82-4 HCAPLUS

CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)

RN 1717-84-6 HCAPLUS

CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



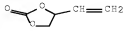
IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate
4427-96-7, Vinyl ethylene carbonate
114435-02-8, Fluoroethylene carbonate
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte solns. containing carbonates and additives for secondary lithium batteries)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)

RN 4427-96-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 114435-02-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-fluoro- (CA INDEX NAME)

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery anode silicon tin lead; battery electrolyte carbonate lithium salt anhydride
IT Battery anodes
Battery electrolytes
(electrolyte solns. containing carbonates and additives for secondary lithium batteries)
IT Secondary batteries
(lithium; electrolyte solns. containing carbonates and additives for secondary lithium batteries)
IT 55-98-1, Busulfan 66-27-3, Methyl methane sulfonate 67-68-5, Dimethyl sulfoxide, uses 67-71-0, Dimethyl sulfone 75-18-3, Dimethyl sulfide 85-44-9, Phthalic anhydride 92-06-8, 1,3-Diphenyl benzene 92-52-4, Biphenyl, uses 98-06-6, (1,1-Dimethyl ethyl) benzene 108-30-5, Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 127-63-9, Diphenyl sulfone 139-66-2, Diphenyl sulfide 462-06-6, Fluorobenzene 544-40-1, Dibutyl sulfide 629-45-8, Dibutyl disulfide 699-30-9 756-79-6, Dimethyl methyl phosphonate 791-28-6, Triphenyl phosphine oxide 814-29-9, Tributyl phosphine oxide 827-52-1, Cyclohexyl benzene 882-33-7, Diphenyl disulfide 945-51-7, Diphenyl sulfoxide 1667-08-9 1717-82-4, 1-Cyclohexyl 2-fluorobenzene 1717-84-6, 1-Cyclohexyl 4-fluorobenzene 1973-15-5 2170-03-8, Itaconic anhydride 2240-41-7, Dimethyl phenyl phosphonate 3561-67-9, Bis(phenyl thio) methane 4480-83-5, Diglycolic anhydride 4775-09-1, Ethyl diethyl phosphinate 16156-59-5, Phenyl methane sulfonate 25236-64-0, 2,2,2-Trifluoroethyl methane sulfonate 33454-82-9, Lithium trifluoromethane sulfonate 90076-65-6 117186-54-6 132404-42-3 132843-44-8 390750-44-4 409071-16-5 412030-34-3 521065-36-1
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing carbonates and additives for secondary lithium batteries)
IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate
4427-96-7, Vinyl ethylene carbonate
12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate
114435-02-8, Fluoroethylene carbonate 918298-87-0, Carbon l2, copper 8.1, silicon 73
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte solns. containing carbonates and additives for secondary lithium batteries)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

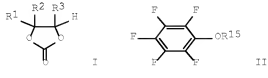
L82 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2006:734562 HCAPLUS Full-text
DOCUMENT NUMBER: 145:191970
TITLE: Nonaqueous electrolyte solution and secondary lithium battery using the solution
INVENTOR(S): Abe, Koji; Kuwata, Takaaki
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006077763	A1	20060727	WO 2006-JP300278	20060112
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CN 101107745	A	20080116	CN 2006-80002854	20060112
IN 2007CN03175	A	20070907	IN 2007-CN3175	20070719
KR 2007097072	A	20071002	KR 2007-716598	20070719
US 20090053598	A1	20090226	US 2007-814372	20070720

PRIORITY APPLN. INFO.:		
JP 2005-12728	A	20050120
JP 2005-12729	A	20050120
WO 2006-JP300278	W	20060112

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OTHER SOURCE(S): MARPAT 145:191970
ED Entered STN: 27 Jul 2006
GI



AB The electrolyte solution has an electrolyte salt dissolved in a nonaq solvent; where the electrolyte solution further contains 0.1-10 weight% ethylene carbonate derivative I (R1-3 = H, halo, C2-12 alkenyl, C2-12 alkynyl, or C6-18 aryl group), and 0.01-10 weight% triple bond-containing compound and/or a pentafluorophenyl oxy compound II (R15

= C2-12 alkyl carbonyl, C2-12 alkoxycarbonyl, C7-18 aryloxy carbonyl, or C1-12 alkane sulfonyl group; and ≥1 H atom in R15 is substituted by halo atom or C6-18 aryl group). The battery has a cathode containing a Li composite oxide, an anode containing graphite, and the above electrolyte solution

IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
623-53-0, Methyl ethyl carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

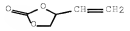
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

IT 98-06-6, tert-Butyl benzene 2049-95-8
4427-96-7, Vinyl ethylene carbonate
61764-71-4, Methyl 2-propynyl carbonate
79493-91-7, Dipropargyl carbonate 114435-02-8,
Fluoroethylene carbonate 902243-09-8
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)

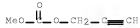
RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)

RN 2049-95-8 HCAPLUS
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

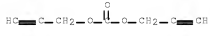
RN 4427-96-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 61764-71-4 HCAPLUS
CN Carbonic acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 79493-91-7 HCAPLUS
CN 2-Propyn-1-ol, 1,1'-carbonate (CA INDEX NAME)



RN 114435-02-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-fluoro- (CA INDEX NAME)

RN 902243-09-8 HCAPLUS
CN Benzene, (1-fluorocyclohexyl)- (CA INDEX NAME)

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery electrolyte
ethylene carbonate deriv pentafluorophenyl oxy

compd; battery electrolyte triple bond contg compd
IT Battery electrolytes
(electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)
IT Secondary batteries
(lithium; electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)
IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
623-53-0, Methyl ethyl carbonate 12190-79-3, Cobalt lithium oxide (CoLiO2)
21324-40-3, Lithium hexafluorophosphate
39361-75-6, Cobalt zirconium oxide 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2)
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)
IT 98-06-6, tert-Butyl benzene 536-74-3, Phenyl acetylene
827-52-1, Cyclohexyl benzene 2049-95-8
4427-96-7, Vinyl ethylene carbonate
7310-92-1 13702-09-5 14283-07-9, Lithium tetrafluoroborate
16156-58-4, 2-Propynyl methane sulfonate 19220-93-0, Pentafluorophenyl acetate 26842-65-9 32042-39-0
61764-71-4, Methyl 2-propynyl carbonate
79493-91-7, Dipropargyl carbonate 90076-65-6
114435-02-8, Fluoroethylene carbonate 161912-36-3
197244-15-8 406725-07-3 417706-30-0 902243-09-8
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)
IT 2917-96-6
RL: MOA (Modifier or additive use); USES (Uses)
(example; electrolyte solns. having ethylene carbonate derivs. and pentafluorophenyl oxy compds. and/or triple bond-containing compds. for secondary lithium batteries)
OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L82 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:451712 HCAPLUS Full-text
DOCUMENT NUMBER: 143:10534
TITLE: Nonaqueous electrolyte solution and secondary lithium battery
INVENTOR(S): Abe, Koji; Hattori, Takashi; Matsumori, Yasuo
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2005048391 A1 20050526 WO 2004-JP16749
2004
1111

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT,
LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG,
CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2545791 A1 20050526 CA 2004-2545791
2004
1111

EP 1691441 A1 20060816 EP 2004-818499
2004
1111

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, PL, SK, HR, IS, YU

CN 1906794 A 20070131 CN 2004-80040412
2004
1111

CN 100459274 C 20090204

US 20070082271 A1 20070412 US 2006-579249
2006
0512

ZA 2006004773 A 20070328 ZA 2006-4773
2006
0609

KR 2006121173 A 20061128 KR 2006-711531
2006
0612

IN 2006CN02096 A 20070706 IN 2006-CN2096
2006
0613

PRIORITY APPLN. INFO.: JP 2003-383404 A
2003
1113

JP 2004-25833 A
2004
0202

WO 2004-JP16749 W
2004
1111

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered STN: 27 May 2005

AB The electrolyte solution has an electrolyte salt dissolved in a nonaq. solvent, containing a cyclic carbonate compound, a linear carbonate compound, and a cyclohexyl benzene compound having 1 or 2 halo atoms bonded to a benzene ring; where the volume ratio of the cyclic carbonate compound to the linear carbonate compound in the nonaq. solvent is 20-40:60-80, or the solvent further contains a small amount of a branched alkylbenzene compound The battery has a cathode, an anode, and the above electrolyte solution

IT 96-49-1, Ethylene carbonate
623-53-0, Methyl ethyl carbonate 872-36-6, Vinylene carbonate
RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)

IT 98-06-6, tert-Butyl benzene 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 1717-82-4 1717-83-5 1717-84-6 2049-95-8, tert-Pentyl benzene 852333-52-9
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)

RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

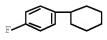
RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)

RN 1717-82-4 HCAPLUS
CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)

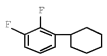
RN 1717-83-5 HCAPLUS
CN Benzene, 1-cyclohexyl-3-fluoro- (CA INDEX NAME)

RN 1717-84-6 HCAPLUS
CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

RN 852333-52-9 HCAPLUS
CN Benzene, 1-cyclohexyl-2,3-difluoro- (CA INDEX NAME)



IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery
electrolyte nonaq solvent battery; battery
electrolyte solvent cyclic linear carbonate cyclohexyl
benzene compd
IT Battery electrolytes
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
IT Secondary batteries
(lithium; electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
IT 96-49-1, Ethylene carbonate
623-53-0, Methyl ethyl carbonate 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
IT 98-06-6, tert-Butyl benzene 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 827-52-1, Cyclohexyl benzene 1717-82-4 1717-83-5 1717-84-6 2049-95-8, tert-Pentyl benzene 852333-52-9
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L82 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:283755 HCAPLUS Full-text
DOCUMENT NUMBER: 142:358035
TITLE: Nonaqueous electrolyte solution and secondary lithium battery using the solution
INVENTOR(S): Abe, Koji; Kuwata, Takaaki
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005029631	A1	20050331	WO 2004-JP13687	2004 0917

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,

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            PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
            TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
        RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
            ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
            CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
            MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
            CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
    EP 1672729          A1    20060621    EP 2004-773306
                                                          2004
                                                          0917
        R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
            MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
            EE, HU, PL, SK, HR
    CN 1864299          A     20061115    CN 2004-80026823
                                                          2004
                                                          0917
    CN 100481604        C     20090422
    KR 2006076304       A     20060704    KR 2006-705312
                                                          2006
                                                          0316
    US 20070054185      A1    20070308    US 2006-572571
                                                          2006
                                                          0317
    US 7261975          B2    20070828
PRIORITY APPLN. INFO.:                    JP 2003-324100      A
                                                          2003
                                                          0917

                                          WO 2004-JP13687     W
                                                          2004
                                                          0917

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
ED   Entered STN:  01 Apr 2005
AB    The electrolyte solution has an electrolyte salt dissolved in a nonaq. solvent; where
      the electrolyte solution further contains a pentafluorophenyloxy compound C6F5-OR1 (R1
      = substituent selected from C2-12 alkyl carbonyl, C7-18 aryloxy carbonyl and/or C1-12
      alkane sulfonyl group; and at least one H atom of the substituent may be substituted by
      a halogen atom or an C6-18 aryl group) and a vinylene carbonate and/or 1,3-propane
      sultone. The battery has a cathode, an anode, and the above electrolyte solution
IT   96-49-1, Ethylene carbonate
     108-32-7, Propylene carbonate   623-53-0,
     Methyl ethyl carbonate
     RL: DEV (Device component use); USES (Uses)
        (electrolyte solns. containing pentafluorophenyloxy
        compds. for secondary lithium
        batteries)
RN   96-49-1  HCAPLUS
CN   1,3-Dioxolan-2-one  (CA INDEX NAME)
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RN   108-32-7  HCAPLUS
CN   1,3-Dioxolan-2-one, 4-methyl-  (CA INDEX NAME)
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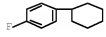
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

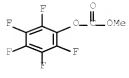
IT 872-36-6, Vinylene carbonate
1717-84-6 2049-95-8, tert-Pentyl benzene
36919-03-6, Methyl pentafluorophenyl carbonate
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)
RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)

RN 1717-84-6 HCAPLUS
CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

RN 36919-03-6 HCAPLUS
CN Carbonic acid, methyl 2,3,4,5,6-pentafluorophenyl ester (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery
electrolyte pentafluorophenyloxy compd
IT Battery electrolytes
(electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)
IT Secondary batteries
(lithium; electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0, Methyl ethyl carbonate 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)
IT 96-48-0 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane sultone 1717-84-6 2049-95-8, tert-Pentyl benzene 5129-37-3, Butyl pivalate 19220-93-0, Pentafluorophenyl acetate 36919-03-6, Methyl pentafluorophenyl carbonate 71573-77-8, Dipropargyl oxalate 161912-36-3
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)
OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L82 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2005:76450 HCAPLUS Full-text
DOCUMENT NUMBER: 142:180441
TITLE: Nonaqueous electrolyte solution for secondary lithium battery and the battery
INVENTOR(S): Abe, Koji; Miyoshi, Kazuhiro; Kuwata, Takaaki
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005008829	A1	20050127	WO 2004-JP10194	20040716

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,

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            TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
        RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
            ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
            CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
            MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
            CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     CA 2532579            A1    20050127    CA 2004-2532579
                                                           2004
                                                           0716
     EP 1650826            A1    20060426    EP 2004-747660
                                                           2004
                                                           0716
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
             MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
             EE, HU, PL, SK, HR
     CN 1853307            A     20061025    CN 2004-80026556
                                                           2004
                                                           0716
     CN 100517853          C     20090722
     ZA 2006000431         A     20070425    ZA 2006-431
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     IN 2006CN00200        A     20070629    IN 2006-CN200
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     KR 2006035767         A     20060426    KR 2006-701080
                                                           2006
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     US 20060177742        A1    20060810    US 2006-564852
                                                           2006
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     IN 2007CN04612        A     20080328    IN 2007-CN4612
                                                           2007
                                                           1016
PRIORITY APPLN. INFO.:                      JP 2003-198421      A
                                                           2003
                                                           0717
                                            JP 2003-383403      A
                                                           2003
                                                           1113
                                            WO 2004-JP10194     W
                                                           2004
                                                           0716
                                            IN 2006-CN200       A3
                                                           2006
                                                           0116

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OTHER SOURCE(S):         MARPAT 142:180441
ED   Entered STN:  28 Jan 2005
GI



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT
  *

AB    The electrolyte solution contains 0.01-10% vinyl carbonate compound I (R1 and R2 = H or
      C1-4 alkyl groups) and 0.01-10% alkyne compds. selected from II-VII (R's and Y's
      defined; and x and p = 1 or 2).
IT    96-49-1, Ethylene carbonate
      108-32-7, Propylene carbonate    623-53-0,
      Ethyl methyl carbonate
```

RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

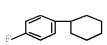
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

IT 98-06-6, tert-Butylbenzene
872-36-6, Vinylene carbonate
1717-84-6 2049-95-8, tert-Amylbenzene 61764-71-4 79493-91-7, Dipropargyl carbonate
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)

RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)

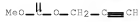
RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)

RN 1717-84-6 HCAPLUS
CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)

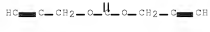


RN 2049-95-8 HCAPLUS
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

RN 61764-71-4 HCAPLUS
CN Carbonic acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 79493-91-7 HCAPLUS
CN 2-Propyn-1-ol, 1,1'-carbonate (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-02; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery
electrolyte soln vinyl carbonate deriv; acetylene group compd secondary lithium battery
electrolyte soln
IT Battery electrolytes
(electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)
IT 96-49-1, Ethylene carbonate
108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate 90076-65-6
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)
IT 98-06-6, tert-Butylbenzene
452-10-8, 2,4-Difluoroanisole 462-06-6, Fluorobenzene
536-74-3, Phenylacetylene 827-52-1, Cyclohexylbenzene
872-36-6, Vinylene carbonate

1072-53-3, Ethylene sulfate 1120-71-4, 1,3-Propanesultone
171?-84-6 2049-95-8, text-
Amylbenzene 16156-58-4, 2-Propynyl methanesulfonate
32042-39-0 36677-73-3 61764-71-4 71573-77-8,
Di(2-propynyl) oxalate 79493-91-7, Dipropargyl
carbonate 131166-79-5 197244-15-8 347396-84-3 406725-07-3
833427-83-1
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte solns. containing vinyl carbonate derivs.
and alkyne compds. for secondary lithium
batteries)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L82 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2004:159983 HCAPLUS Full-text
DOCUMENT NUMBER: 140:202414
TITLE: Secondary lithium
battery, nonaqueous
electrolyte, and method for ensuring
battery safety
INVENTOR(S): Abe, Hiroshi; Miyoshi, Kazuhiro; Kuwata,
Takaaki; Matsumori, Yasuo
PATENT ASSIGNEE(S): Ube Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004063367	A	20040226	JP 2002-222509	2002 0731
JP 4374833	B2	20091202		

PRIORITY APPLN. INFO.: JP 2002-222509 2002 0731

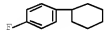
ED Entered STN: 27 Feb 2004
AB The battery uses a Ni or Co containing Li multiple oxide, a Li (alloy) or Li intercalating anode, and a nonaq. electrolyte solution; where the electrolyte solution contains an organic compound which decomps. to deposit a coating layer on the active Li surface, during overcharge of the battery, to ensure the battery safety. Preferably, the compound has an redox. potential 4.6.apprx.5.2 V vs. Li, and is a ketone selected from menthone, isomenthone, camphor, nopinone, and fenchone and may be mixed with a cyclohexylbenzene derivative The electrolyte solution contains the compound
IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compound additives for
secondary lithium battery safety)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 872-36-6 HCAPLUS
CN 1,3-Dioxol-2-one (CA INDEX NAME)

IT 98-06-6, tert-Butylbenzene
1717-84-6 2049-95-8, tert-Pentylbenzene
RL: MOA (Modifier or additive use); USES (Uses)
(organic compound additives in electrolyte solns. for secondary lithium battery safety)
RN 98-06-6 HCAPLUS
CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)

RN 1717-84-6 HCAPLUS
CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

IC ICM H01M010-40
ICS H01M004-02; H01M004-40; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery

electrolyte safety additive ketone
cyclohexylbenzene

IT Battery electrolytes
Safety
(electrolyte solns. containing organic compound additives for secondary lithium battery safety)

IT Secondary batteries
(lithium; electrolyte solns. containing organic compound additives for secondary lithium battery safety)

IT 96-49-1, Ethylene carbonate
105-58-8, Diethyl carbonate
872-36-6, Vinylene carbonate
21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. containing organic compound additives for secondary lithium battery safety)

IT 76-22-2, Camphor 89-80-5, Menthone 98-06-6, tert-Butylbenzene 491-07-6, Isomenthone
827-52-1, Cyclohexylbenzene 1717-84-6
2049-95-8, tert-Pentylbenzene
4695-62-9, (+)-Fenchone 24903-95-5, Nopinone 444603-90-1
RL: MOA (Modifier or additive use); USES (Uses)
(organic compound additives in electrolyte solns. for secondary lithium battery safety)

FULL SEARCH HISTORY

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=> d his nofile

     (FILE 'HOME' ENTERED AT 14:47:01 ON 11 JAN 2010)

     FILE 'HCAPLUS' ENTERED AT 14:47:10 ON 11 JAN 2010
L1             1 SEA SPE=ON  ABB=ON  PLU=ON  US20070082271/PN
                 D SCA
                 D PRAI
                 SEL RN

     FILE 'REGISTRY' ENTERED AT 14:48:16 ON 11 JAN 2010
L2            13 SEA SPE=ON  ABB=ON  PLU=ON  (105-58-8/BI OR 1717-82-4/B
                 I OR 1717-83-5/BI OR 1717-84-6/BI OR 2049-95-8/BI OR
                 21324-40-3/BI OR 616-38-6/BI OR 623-53-0/BI OR
                 827-52-1/BI OR 852333-52-9/BI OR 872-36-6/BI OR
                 96-49-1/BI OR 98-06-6/BI)
                 D SCA

     FILE 'HCAPLUS' ENTERED AT 14:48:34 ON 11 JAN 2010
                 D SCA L1

     FILE 'REGISTRY' ENTERED AT 14:48:34 ON 11 JAN 2010

     FILE 'STNGUIDE' ENTERED AT 14:48:37 ON 11 JAN 2010

     FILE 'HCAPLUS' ENTERED AT 14:53:22 ON 11 JAN 2010
                 D SAV

     FILE 'REGISTRY' ENTERED AT 14:53:49 ON 11 JAN 2010
                 ACT WEI249REG/A
                 ---------
L3          1155 SEA SPE=ON  ABB=ON  PLU=ON  46.150.1/RID AND 46.150.18/
                 RID AND X/ELS AND 3/ELC.SUB AND 2/NRS
                 ---------
                 ACT WEI249REGA/A
                 ---------
L4         12078 SEA SPE=ON  ABB=ON  PLU=ON  46.150.18/RID AND 1/NRS
                 AND ((C(L)H)/ELS(L)2/ELC.SUB)
                 ---------
                 D QUE
                 D QUE L3
                 ACT WEI249REGB/A
                 ---------
L5  (      12078)SEA SPE=ON  ABB=ON  PLU=ON  46.150.18/RID AND 1/NRS
                 AND ((C(L)H)/ELS(L)2/ELC.SUB)
L6  (        271)SEA SPE=ON  ABB=ON  PLU=ON  L5 AND ?TERT?/CNS
L7  (        117)SEA SPE=ON  ABB=ON  PLU=ON  L5 AND SEC?/CNS
L8           384 SEA SPE=ON  ABB=ON  PLU=ON  L6 OR L7
                 ---------
                 D QUE
                 ACT WEI249REGC/A
                 ---------
L9  (      41379)SEA SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/CNS
L10 (      13115)SEA SPE=ON  ABB=ON  PLU=ON  L9 AND NO RSD/FA
L11         6035 SEA SPE=ON  ABB=ON  PLU=ON  L10 NOT M/ELS
                 ---------
                 D QUE
L12            3 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L11
                 D SCA
                 ACT WEI249REGD/A
                 ---------
L13 (      41379)SEA SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/CNS
L14        28262 SEA SPE=ON  ABB=ON  PLU=ON  L13 AND RSD/FA
                 ---------
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                D QUE
L15               2 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L14
                  D SCA
                  D 1 CN
                  D 2 CN
L16           41379 SEA SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/CNS
L17             207 SEA SPE=ON  ABB=ON  PLU=ON  L14 AND (DIMETHYLVINYLENE
                    OR VINYLETHYLENE OR PROPYLENE OR BUTYLENE)
L18             207 SEA SPE=ON  ABB=ON  PLU=ON  L17 AND L14
L19             146 SEA SPE=ON  ABB=ON  PLU=ON  (DIMETHYLVINYLENE OR
                    VINYLETHYLENE OR PROPYLENE OR BUTYLENE)(A)CARBONATE
L20             142 SEA SPE=ON  ABB=ON  PLU=ON  L19 AND L14
L21             144 SEA SPE=ON  ABB=ON  PLU=ON  L20 OR L15
                  D QUE L3
L22             326 SEA SPE=ON  ABB=ON  PLU=ON  L3 AND 1-2/F
L23               4 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L22
                  D SCA
L24               2 SEA SPE=ON  ABB=ON  PLU=ON  L4 AND L2
                  D SCA
                  D 1 CN
                  D CN 2
L25               0 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND 9/C
                  E ISOPROPYLBENZENE/CN
L26               1 SEA SPE=ON  ABB=ON  PLU=ON  ISOPROPYLBENZENE/CN
                  D SCA
                  D QUE L5
                  D QUE L4
L27             415 SEA SPE=ON  ABB=ON  PLU=ON  L4 AND ISO?/CNS
L28               1 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L27
                  D SCA
L29             785 SEA SPE=ON  ABB=ON  PLU=ON  L8 OR L27
                  SAV TEMP L29 WEI249REGC/A
L30               2 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L29
                  D SCA
L31              68 SEA SPE=ON  ABB=ON  PLU=ON  L29 AND 14/C
L32               5 SEA SPE=ON  ABB=ON  PLU=ON  L31 AND (DITERT? OR
                    DI(W)TERT?)
                  E "BENZENE, 1,3-BIS(1,1-DIMETHYLETHYL)-"/CN
L33               1 SEA SPE=ON  ABB=ON  PLU=ON  "BENZENE, 1,3-BIS(1,1-DIMET
                    HYLETHYL)-"/CN
                  D SCA
L34               1 SEA SPE=ON  ABB=ON  PLU=ON  L29 AND L33
                  E TERT-BIPHENYL/CN
                  E "4-TERT-BIPHENYL"/CN
L35              37 SEA SPE=ON  ABB=ON  PLU=ON  L29 AND 16/C
L36               0 SEA SPE=ON  ABB=ON  PLU=ON  L35 AND ?BIPHENYL?/CNS
                  D QUEL4
                  D QUE L4
                  E TERT-BIPHENYL?CN
                  E "4-TERT-BUTYLBIPHENYL"/CN
L37               1 SEA SPE=ON  ABB=ON  PLU=ON  "4-TERT-BUTYLBIPHENYL"/CN
                  D SCA
                  E "BIS(4-TERT-BUTYLPHENYL"/CN
                  E "BIS(4-TERT-BUTYLPHENYL)"/CN
                  E "BIS(TERT-BUTYLPHENYL)"/CN
                  E "BIS(TERT-BUTYLPHENYL) ETHER"/CN
                  E "BIS(TERT-BUTYLBIPHENYL) ETHER"/CN
                  E "BIS(4-TERT-BUTYLPHENYL) ETHER"/CN
                  E C20H26O/MF
L38             797 SEA SPE=ON  ABB=ON  PLU=ON  C20H26O/MF
L39              34 SEA SPE=ON  ABB=ON  PLU=ON  L38 AND ?ETHER?/CNS
L40               3 SEA SPE=ON  ABB=ON  PLU=ON  L39 AND ?BUTYLPHENYL?/CNS
                  D SCA
                  E "BENZENE, 1,1'-OXYBIS[4-(1,1-DIMETHYLETHYL)-"/CN
                  E "BENZENE, 1,1'-OXYBIS[4-(1,1-DIMETHYLETHYL)-"/CN
L41               2 SEA SPE=ON  ABB=ON  PLU=ON  L40 AND ?TERT?/CNS
                  D 1-2
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                E "4,4'-DI-TERT-BUTYLDIPHENYL ETHER"/CN
L42           1 SEA SPE=ON  ABB=ON  PLU=ON  "4,4'-DI-TERT-BUTYLDIPHENYL
                  ETHER"/CN
                E "4,4'-DI-TERT-PENTYLDIPHENYL ETHER"/CN
                E "4,4'-DI-TERT-PENTYLPHENYL ETHER"/CN
                E "4,4'-DI-TERT-BUTYLDIPHENYL ETHER"/CN
                E "4,4'-DI-TERT-PENTYLDIPHENYL ETHER"/CN
                E TERT-PENTYLDIPHENYL/CNS
                E TERT-PENTYLPHENYL/CNS
                E "ETHER, BIS(P-TERT-BUTYLPHENYL)"/CN
                E "ETHER, BIS(P-TERT-PENTYLPHENYL)"/CN
L43           1 SEA SPE=ON  ABB=ON  PLU=ON  "ETHER, BIS(P-TERT-PENTYLPH
                ENYL)"/CN
                D SCA
                D CN
L44           4 SEA SPE=ON  ABB=ON  PLU=ON  (L33 OR L34) OR L37 OR L42
                OR L43

     FILE 'HCAPLUS' ENTERED AT 15:53:35 ON 11 JAN 2010
                D SAV
                ACT WEI249HCP/A
                ----------
L45 (      1155)SEA SPE=ON  ABB=ON  PLU=ON  46.150.1/RID AND 46.150.18/
                  RID AND X/ELS AND 3/ELC.SUB AND 2/NRS
L46 (     12078)SEA SPE=ON  ABB=ON  PLU=ON  46.150.18/RID AND 1/NRS
                  AND ((C(L)H)/ELS(L)2/ELC.SUB)
L47 (       271)SEA SPE=ON  ABB=ON  PLU=ON  L46 AND ?TERT?/CNS
L48 (       117)SEA SPE=ON  ABB=ON  PLU=ON  L46 AND SEC?/CNS
L49 (       384)SEA SPE=ON  ABB=ON  PLU=ON  L47 OR L48
L50 (     41379)SEA SPE=ON  ABB=ON  PLU=ON  ?CARBONATE?/CNS
L51 (     13115)SEA SPE=ON  ABB=ON  PLU=ON  L50 AND NO RSD/FA
L52 (      6035)SEA SPE=ON  ABB=ON  PLU=ON  L51 NOT M/ELS
L53 (     28262)SEA SPE=ON  ABB=ON  PLU=ON  L50 AND RSD/FA
L54 (    111748)SEA SPE=ON  ABB=ON  PLU=ON  L52
L55 (    190374)SEA SPE=ON  ABB=ON  PLU=ON  L53
L56 (      1439)SEA SPE=ON  ABB=ON  PLU=ON  L45
L57 (      8410)SEA SPE=ON  ABB=ON  PLU=ON  L49
L58           6 SEA SPE=ON  ABB=ON  PLU=ON  L54 AND L55 AND L56 AND
                L57
                ---------
L59           1 SEA SPE=ON  ABB=ON  PLU=ON  L1 AND L58
                D SCA
L60        8410 SEA SPE=ON  ABB=ON  PLU=ON  L8
L61           6 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND L60
                D QUE L3
L62        1439 SEA SPE=ON  ABB=ON  PLU=ON  L3
L63           6 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND L62
L64       26442 SEA SPE=ON  ABB=ON  PLU=ON  L21
L65           6 SEA SPE=ON  ABB=ON  PLU=ON  L63 AND L64
                D QUE L21
L66       13696 SEA SPE=ON  ABB=ON  PLU=ON  L12
L67         628 SEA SPE=ON  ABB=ON  PLU=ON  L22
L68           6 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND L67
L69          20 SEA SPE=ON  ABB=ON  PLU=ON  L23
L70           5 SEA SPE=ON  ABB=ON  PLU=ON  L69 AND L68
L71         294 SEA SPE=ON  ABB=ON  PLU=ON  L44
L72           6 SEA SPE=ON  ABB=ON  PLU=ON  L58 OR L61 OR L63 OR L65
                OR L68 OR L70
L73           0 SEA SPE=ON  ABB=ON  PLU=ON  L72 AND L71
                D QUE L71
                D QUE L71
L74           6 SEA SPE=ON  ABB=ON  PLU=ON  L72 OR L73
L75             QUE SPE=ON  ABB=ON  PLU=ON  VOLT? OR TERMINAT?(2A)(VOLT
                ? OR V)
L76             QUE SPE=ON  ABB=ON  PLU=ON  CHARG? OR DISCHARG? OR
                BATTER?(2A)(LITHIUM? OR LI OR SECONDAR?) OR ELECTROLYT?
                 OR NONAQUEOUS? OR NON(W)AQUEOUS? OR ANODE OR CATHODE
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                OR ELECTRODE(2A)(POSITIVE OR NEGATIVE)
L77           6 SEA SPE=ON  ABB=ON  PLU=ON  L74 AND (L75 OR L76)

     FILE 'REGISTRY' ENTERED AT 16:13:31 ON 11 JAN 2010
L78          15 SEA SPE=ON  ABB=ON  PLU=ON  L12 OR L15 OR L23 OR L24
                OR L30 OR L44

     FILE 'HCAPLUS' ENTERED AT 16:15:39 ON 11 JAN 2010

     FILE 'REGISTRY' ENTERED AT 16:16:00 ON 11 JAN 2010
L79          17 SEA SPE=ON  ABB=ON  PLU=ON  L2 OR L78

     FILE 'HCAPLUS' ENTERED AT 16:16:11 ON 11 JAN 2010
                DEL SEL

     FILE 'REGISTRY' ENTERED AT 16:16:26 ON 11 JAN 2010
                SET SMARTSELECT ON
L80             SEL PLU=ON  L79 1- NAME :      70 TERMS
                SET SMARTSELECT OFF

     FILE 'HCAPLUS' ENTERED AT 16:16:27 ON 11 JAN 2010
L81         64238 SEA SPE=ON  ABB=ON  PLU=ON  L80
L82             6 SEA SPE=ON  ABB=ON  PLU=ON  L77 AND L81
                D SCA
                SAV TEMP L82 WEI249HCP/A
                D QUE L82
                D L82 1-6 IBIB ED ABS HITSTR HITIND
```